

ABSTRACT

The present invention mitigates loss of beam current, particularly for low energy ion beam transport. The present invention employs unipolar electrostatic quadrupole lenses instead of conventional dual positive and negative potential (bipolar) quadrupole lenses as beam focusing elements within a linear

5 accelerator, reducing beam current losses therein. In addition, the present invention also includes systems and methods for switching between bipolar wiring and unipolar wiring.